



Flooding in Pakistan: Overview and Issues for Congress

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Summary

Pakistan is in the midst of a catastrophic natural disaster that has precipitated a humanitarian crisis of major proportions. Widespread flooding has affected about 20 million Pakistanis and inundated an area the size of Florida. Congressional interest in the flooding stems from the significant humanitarian and economic implications for the country, and the security implications for U.S. interests in the region. While it is too early to fully assess the extent of the damage and the wide range of its ramifications, it is almost certain that the negative effects of the crisis will be felt for many years to come.

The floods stem from abnormally heavy rains during the monsoon season in July and August, which led to flooding in the Indus River Basin which runs from the north to the south of Pakistan. Excess water led the Indus River and its tributaries to breach their levees and inundate adjacent and downstream floodplains. Some 1,750 people are believed to have been killed. One fifth of the country was submerged, and an estimated eight million Pakistanis were displaced from their homes. The numbers affected are significantly greater than several recent disasters around the world combined. Little clean drinking water is available for many of the people who have been affected. Many of those, particularly children, are now in danger of disease outbreak, particularly diarrhea caused by ingesting stagnant water, and malaria. The catastrophic loss of livestock and crop lands and extensive damage to the country's infrastructure are projected to have devastating long-term effects on Pakistan's food security and economic performance.

Pakistan is at the center of several crucial U.S. interests, including fighting terrorism and religious militancy, seeking stability in neighboring Afghanistan, promoting nuclear non-proliferation, among others. The floods have the potential to affect broad political and strategic dynamics in Pakistan and the region in a number of ways. The crisis may undermine the already waning legitimacy of the civilian government by demonstrating its ineffectiveness to large numbers of Pakistanis in need of public services, while improving the status of Pakistan's powerful military by the more visible role it has played in providing disaster relief. It may also provide militants an opportunity to garner favor with affected communities by giving them an opportunity to demonstrate that they can provide assistance in areas where the government is absent. The crisis will also likely divert attention and resources from other priorities, at a time when Pakistan remains financially strapped.

U.S. interests are served by a stable Pakistan that can effectively rule all its territory. Any crisis on a scale of the present floods that undermines the Pakistani state's ability to control its territory has the potential to undermine U.S. interests. The inability of Pakistan to fully extend its authority into areas along its northwest frontier with Afghanistan has allowed Islamist militants hostile to the United States to find refuge. The current floods have already diverted Pakistani resources and focus away from its struggle with Islamist militants. This has the potential to indirectly affect U.S. military involvement in Afghanistan by taking pressure off militants on the Pakistani side of the international frontier. On a more positive note, the crisis presents the United States with an opportunity to improve its poor image among Pakistanis through provision of humanitarian assistance. Congress will play an important role in overseeing such assistance in the near term, and broad foreign assistance strategies for rebuilding infrastructure and other development goals in the medium and long run. For more information on environmental issues and Pakistan, see CRS Report R41358, *Security and the Environment in Pakistan*. For broader discussion of U.S.-Pakistan relations, see CRS Report R41307, *Pakistan: Key Current Issues and Developments*.

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Introduction

Widespread flooding in Pakistan has affected millions of people and caused a significant humanitarian disaster with widespread economic and security consequences for the country. A stable, democratic, prosperous Pakistan actively combating religious militancy is considered vital to U.S. interests. The humanitarian effects of the flooding along with its regional security consequences have generated considerable concern in the United States and many countries around the world. The flooding in Pakistan, which started in late July and still persists today, has directly affected over 20 million people. Over 1.8 million households have been destroyed or damaged.¹ Approximately 1,752 people have died and over 2,700 are reported injured.²

In terms of displaced persons, the humanitarian impact of the Pakistan flooding is estimated to be larger than other recent natural disasters experienced globally. The estimated 20 million people affected by flooding in Pakistan is more than the estimated number of people affected by the earthquake in Haiti, the 2005 tsunami in the Indian Ocean littoral region, and the 2005 South Asia earthquake combined.³ The death toll is anticipated to rise significantly once floodwaters recede; of particular concern are the roughly 800,000 people estimated to be unreachable except by air. Lost shelter and food staples, limited access to clean water, and dangerous sanitary conditions from standing water and submerged lands and dead livestock are some of the more immediate issues. Concerns about malnutrition, gastroenteritis, diarrhea, skin infections, cholera, typhoid, malaria, and hepatitis have been reported. The Pakistan government has established a National Oversight Disaster Management Council to improve the transparency in the distribution of flood relief. However, humanitarian relief efforts have been tempered by initially low levels of donations and security concerns in some regions.⁴

Some medium and long-term consequences of flooding have been projected. Lost livelihoods for farmers (e.g., not being able to plant next season's crop) and a diminished food supply are a concern for many. The flooding destroyed crops, food stockpiles, livestock, seeds, structures, and equipment. Food prices have dramatically increased since the flooding, putting an economic strain on the entire population. Rebuilding damaged and destroyed housing is also expected to affect the return of displaced populations. As tensions mount and the struggle to stabilize persists, public confidence in government efforts to provide assistance might be further tested. Long term consequences such as damaged infrastructure (e.g., bridges, roads, electrical plants, and schools) are also expected to hamper recovery efforts and have a lasting effect on the country.

Before the flooding, top-tier U.S. concerns regarding Pakistan included regional and global terrorism; stability in neighboring Afghanistan; domestic political stability and democratization; nuclear weapons proliferation and security; human rights protection; and economic development. Flooding has exacerbated these concerns. The effects of the flood on the stability of the Pakistani government and its ability to suppress and contain militants within their borders is an issue of

¹ United Nations Office for the Coordination of Humanitarian Affairs, *Pakistan—Monsoon Floods*, Situation Report #23, September 9, 2010. Hereafter referred to as *OCHA Situation Sept. 9 Report*.

² *OCHA Situation Sept. 9 Report*.

³ The United Nations Office for the Coordination of Humanitarian Affairs, *Pakistan Floods Affect Millions from North to South* Aug. 9, 2010.

⁴ "In Pakistan, Taliban Hint at Attacks on Relief Workers," *The New York Times*, August 26, 2010.

concern for the United States and others. For additional information on broader dynamics related to security and the environment in Pakistan see CRS Report R41358, *Security and the Environment in Pakistan*.

Congressional Interest

Congressional interest regarding the floods in Pakistan stems from multiple factors including: the U.S. response to the humanitarian needs of flood victims, cost of reconstruction after the flood subsides, the ongoing aid given by the United States to the Pakistani government to garner its support for U.S. operations in Afghanistan, disabling the Taliban inside Pakistan's borders, and security concerns arising from a weakened Pakistan with a potentially disenfranchised and dissatisfied population.

Recent Pew public opinion surveys in Pakistan before the floods present two issues of concern: (1) that the percentage of Pakistanis polled who are worried about extremist groups taking control of Pakistan has declined from 69% in 2009 to 51% in 2010; and (2) that about 68% polled view the United States unfavorably. These numbers are expected to change after the floods as perception of a weak government grows and pressure to contain militants softens (see later sections of the report for more details). The United States, however, has an opportunity to improve its perception among Pakistanis. While humanitarian benefits are the priority, emergency aid and reconstruction efforts, if successfully implemented, may provide long-term diplomatic benefits for the United States in Pakistan. On August 11, 2010, the United Nations requested an initial \$460 million for Pakistan flood victims; as of mid-September, about 80% has been funded. The U.N. called for another \$2.0 billion for relief as of September 21st. The United States is the largest donor. (See **Table 1**.)

Potential Actions for Congress

One current issue for Congress and the Obama Administration is deciding what additional actions and funds are available, warranted, and effective. Many have suggested potential actions to address flooding in Pakistan. Some of those actions include:

- Additional U.S. emergency relief funding, equipment, and supplies,
- U.S. efforts to promote contributions and cooperation from other nations for emergency response and reconstruction,
- Actions intended to support the Pakistan economy and trade,⁵
- Debt relief,
- Efforts to promote individual and corporate aid and contributions, and
- Measures to promote foreign-direct investment and public-private partnerships.

⁵ For example, H.R. 1318 and S. 496 which would provide duty free treatment for certain goods, particularly textiles and some clothing, from designated reconstruction opportunity zones in Pakistan and Afghanistan. Textiles represent roughly half of Pakistan's exports.

U.S. Funding to Date

The United States is leading international efforts in responding to the Pakistan flooding and emergency relief efforts. Some funds are being converted from a portion of the civilian economic development assistance authorized by the Enhanced Partnership with Pakistan Act of 2009 (P.L. 111-73), which is appropriated primarily within the FY2010 base and supplemental appropriations (P.L. 111-117 and P.L. 111-212 respectively). To date, the United States is providing a total of \$294.6 million for Pakistan **relief**, largely coming from International Disaster Assistance (IDA) and Food For Peace (FFP) funds. Of this total, State Department officials state that more than \$196.8 million is going toward the \$460.0 million originally requested by the United Nations. Secretary of State Clinton announced another \$50.0 million is available for early **recovery** assistance to Pakistan. This amounts to a total of \$344.6 million for the floods in Pakistan. (See **Table 1** below.) In-kind assistance, including military support, such as the value of the helicopters, amounts to another \$55.0 million according to USAID Administrator Shah.⁶

Table 1. FY2010 Humanitarian Aid for Pakistan Floods

(in millions of U.S. dollars)

	FY2010 flood aid
USAID Office of Foreign Disaster Assistance (OFDA)	\$104.9 (All IDA)
USDA/Food for Peace (FFP)	\$128.4 (IDA and title II)
USAID Pakistan Assistance	\$12.0 (all ESF funds, \$10 million from FY2010 base, \$2 million from OTI after transferred from ESF)
USAID Pakistan Early Recovery Assistance	\$50.0 (all ESF funds from FY2010 supp)
State Dept. Bureau of Population, Refugees & Migration (PRM)	\$49.3 (from ERMA & MRA FY2010 base)
DoD	Not available
Total	\$344.6

Source: Communications with the F Bureau, Department of State, and USAID, September 21, 2010.

Prior to the flooding emergency, the United States provided humanitarian aid to Pakistan to address the January 2010 landslides, conflict-affected displaced people (referred to as complex emergency funds), and pre-2010 earthquake expenses. (See **Table 2.**) A potential issue for Congress is whether the purpose of these funds should be changed to reflect flood relief efforts or changed circumstances caused by the flood. If the funds are redirected, then there could be concerns as to how the original objectives of the funding will be met.

⁶ *Remarks on Pakistan Flood Relief Efforts*, Richard Holbrooke, Special Representative for Afghanistan and Pakistan, and Rajiv Shah, USAID Administrator, September 20, 2010. http://www.state.gov/s/special_rep_afghanistan_pakistan/2010/147430.htm

Table 2. FY2010 U.S. Humanitarian Aid to Pakistan

Source	FY2009 Base	FY2009 Spring Supp	FY2010 Base	FY2010 Supp	Total
Appropriation Laws	P.L. 111-8	P.L. 111-32	P.L. 111-117	P.L. 111-212	
Int'l Disaster Asst. (IDA)					
Complex Emergency	\$256,014	\$16,569,222	\$220,295	\$1,500,000	\$18,545,231
Earthquake		\$193,450			\$193,450
Landslide	\$50,000				\$50,000
Floods		\$627,395	\$12,094	\$104,268,629	\$104,908,118
Total IDA	\$306,014	\$17,390,067	\$232,389	\$105,768,629	\$123,697,099
Food For Peace					
Complex Emergency transferred from IDA			\$20,000,000		\$20,000,000
Complex Emergency – Title II	\$55,386,700		\$70,820,800		\$126,207,500
Floods – transferred from IDA			\$108,188,566		\$108,188,566
Floods – Title II			\$20,202,600		\$20,202,600
Floods Total			\$128,391,166		\$128,391,166
Total Food For Peace	\$55,386,700		\$219,211,732		\$274,598,432
Economic Support Fund (ESF)					
USAID Pakistan Flood Aid			\$12,000,000 ^a		\$12,000,000
USAID Pakistan Flood early recovery aid				\$50,000,000	\$50,000,000
Total ESF – Flood Aid			\$12,000,000 ^a	\$50,000,000	\$62,000,000
State Dept – Population, Refugees & Migration					
Complex Emergency (ERMA)	\$13,300,000				\$13,300,000
Complex Emergency (MRA)	\$1,300,000	\$45,000,000 ^b	\$32,000,000		\$78,300,000
Floods (ERMA)			\$33,021,000 ^c		\$33,021,000
Floods (MRA)			\$16,229,000 ^d		\$16,229,000
Floods PRM Total			\$49,250,000		\$49,250,000

a. Of this, \$2.0 million was transferred to Office of Transition Initiatives (OTI) for flood assistance.

b. Of this, \$10.0 million was appropriated within the Bridge Supplemental for FY2009 (P.L. 110-252).

c. Includes \$21,000 recovery funding from prior ERMA appropriations.

d. Includes \$819,000 recovery of prior year MRA funding.

Source: USAID's Office of Foreign Disaster Assistance, Office of Food For Peace; Department of State's Bureau of Population, Refugees, and Migration,, and the Foreign Assistance (F) Bureau.

Notes: IDA=International Disaster Assistance; ERMA=U.S. Emergency Refugee and Migration Assistance; MRA=Migration and Refugee Assistance.

USAID Administrator Rajiv Shah is leading all U.S. government humanitarian response efforts to Pakistan. Nearly 30 U.S. military helicopters and four C-130 planes have been involved in

delivering nearly 4 million pounds of humanitarian supplies. In addition to emergency food supplies, U.S. relief efforts have included plastic sheeting, inflatable rescue boats, concrete-cutting saw kits and replacement blades, shelter, blankets, water storage bladders, and water filtration units among other things. Twenty-six U.S. mobile medical teams are providing health care services, of particular need because about 450 health facilities were destroyed or damaged by the floods, according to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA).

Early recovery activities are beginning in some provinces, even though rescue and relief operations are still underway in others, according to USAID. Early recovery activities include cash grants, cash-for-work programs, delivery of fuel-efficient stoves, and vouchers for seeds and farm tools.

Private Donations

On August 18th, Secretary Clinton announced that the Department of State had created a Pakistan Relief Fund for individuals, corporations, and others to contribute toward relief and recovery efforts in Pakistan. Donations can be made through either the Department of State or USAID websites. As of early September, private sector donations amounted to \$8.39 million, according to USAID. Individuals, corporations, and other organizations can send donations to the people of Pakistan by contributing to this fund at <http://www.state.gov> or <http://www.usaid.gov/pakistanflooding/>. In the United States, individuals also can send funds through mobile phones by texting “FLOOD” to 27722.

What Other Countries Are Doing

Other countries are also providing support, but at levels considerably lower than in the days following the 2010 Haitian earthquake. China claims it was the first to contribute aid to the flood victims and has provided about \$47.0 million.⁷ The European Union has provided a total of about \$305.0 million of cash and in-kind aid, including about \$89.0 million from the European Commission Humanitarian Aid Department and sums from more than 20 countries. For example, Germany about \$36.3 million cash and in-kind, Denmark about \$22.0 million, Sweden about \$21.3 million, Norway about \$66.0 million, the United Kingdom about \$209.0 million, and France about \$2.7 million.⁸ As of September 8, Japan has provided a total of \$25.6 million in cash and relief commodities.⁹ As of the end of August, Australia has provided \$75 million and Canada has pledged about \$32 million U.S. dollars with an additional \$1.4 million from a Canadian humanitarian coalition.¹⁰ India also has provided \$5 million of aid and is offering more, although receiving aid from India is controversial in Pakistan.

⁷ Xinhua General News Service, September 9, 2010.

⁸ European Commission Humanitarian Aid, Fact Sheet Pakistan Monsoon Floods, p. 7, September 10, 2010, <http://ec.europa.eu/echo/files/aid/countries/pakistan-factsheet-monsoon-floods.pdf>.

⁹ Embassy of Japan in Pakistan, Press Release No: JPNEMPAK 10-038, September 8, 2010, <http://www.pk.emb-japan.go.jp/InfoJapan/Press%202010/September/JPNEMPAK%20010-38.html>.

¹⁰ Office of the Ministry of Foreign Affairs, Press Release 277, August 31, 2010, <http://www.international.gc.ca/media/aff/news-communiqués/2010/277.aspx>.

Lessons Learned from Haiti

Despite the unprecedented scale of the flood disaster in Pakistan and more than 20 million people affected, aid donations from around the world have been much slower to materialize than other natural disasters such as the earthquake in Haiti. There are many potential reasons for this difference, including:

- The Haiti earthquake was an emergency situation that happened overnight and with immediate and visible tragedy, while the flood in Pakistan occurred more slowly, over a longer period of time with less apparent urgency to get aid there.
- There has been less U.S. media coverage of Pakistan as compared with the around-the-clock coverage in Haiti.
- The death toll in Pakistan has been relatively lower, about 1,750 deaths, as compared with that of Haiti, estimated to be between 250,000 and 300,000.
- Pakistan's image problem—government corruption and links with terrorism, as well as concerns for potential nuclear proliferation to terrorists—causes people to have concerns of their money getting into the wrong hands.
- Pakistan is farther away from western nations; while Haiti is a neighbor of the United States.
- The floods occurred in summer when many in western nations are on vacation.
- The worldwide recession is limiting donations.
- The Haitian government was weaker and less in control after the earthquake. Foreign governments could take charge more easily there than in Pakistan where the government of Pakistan has a stronger presence and wishes to control relief efforts to the best of its ability.

International assistance after a catastrophe rarely, if ever, meets the need. However, with experience from several recent emergency events, including the earthquake in Haiti, Hurricane Katrina, and the 2004 tsunami in the Indian Ocean, many lessons can be learned to improve the effectiveness of the aid that is provided. Saving more lives, minimizing the recovery costs, and garnering good will can be accomplished by improving response time and methods of delivery. Some have turned to experiences learned in Haiti to address the flood response in Pakistan.¹¹ Some lessons learned include:

- Involving local citizens in the relief effort,
- Listening to the local people about aid needs, and making sure the assistance is appropriate,
- Providing cash for relief and buying locally whenever possible,
- Creating transitional shelter that can be turned into permanent dwellings, rather than focusing on emergency shelter and neglecting permanent shelter,

¹¹ *30 Earthquakes, 28 Lessons Learned*, OneWorld.net, January 21, 2010, <http://us.oneworld.net/article/368623-30-earthquakes-28-lessons-learned> and *The Haiti catastrophe: lessons learned from previous operations*, by Ben Ramalingam, Overseas Development Institute (ODI) Blog January 19, 2010, http://blogs.odi.org.uk/blogs/main/archive/2010/01/19/lessons_for_haiti_aid_response.aspx.

- Starting recovery as soon as possible without negatively affecting the relief effort, and
- Preparing for land-ownership disputes and not expecting the disaster response to resolve underlying political problems such as corruption, poor governance, underdevelopment, and social inequality.

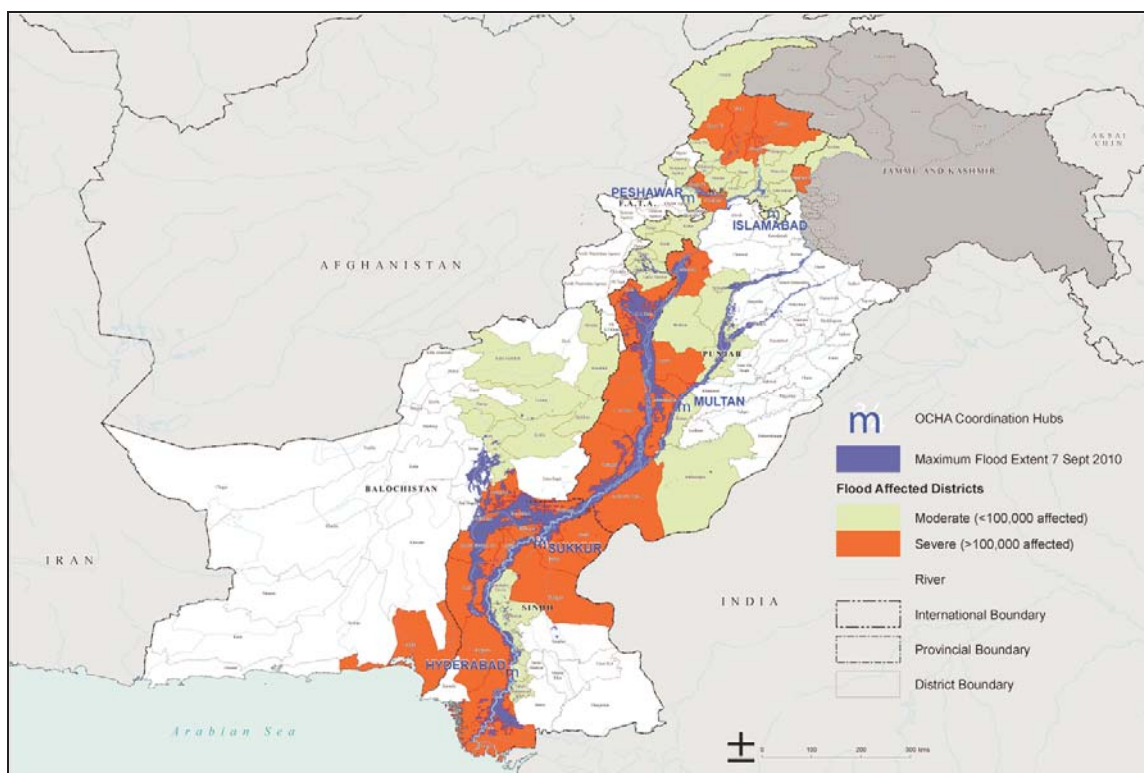
Context of the 2010 Pakistan Flood

Heavy rains associated with monsoons began around July 22, 2010, and led to flash floods in the northwest and east of Pakistan. (See **Figure 1**.) Downpours continued for the rest of the month and persisted into August. The runoff caused the Indus River and its tributaries to breach levees and overflow into floodplains housing both rural and urban populations. At times river flows reached 40 times their normal levels. As floodwaters moved downstream, new areas of flooding emerged in southern provinces, such as Sindh. Intentional levee breaks were made in attempts to protect urban centers (e.g. Hyderabad); nonetheless, levee breaches affecting populations clusters (e.g., Thatta city) were still occurring in early September.

Through early September, the Pakistan Meteorological Department was warning of potential new areas of flooding in low lying areas in the southern portion of the country. At the same time, some of the affected populations in other portions of the basin were returning to their damaged communities as floodwaters receded. Some of these areas were underwater for weeks, resulting in significant agricultural and property losses; concerns about food, shelter, safe water, sanitation, health, and livelihood are likely to persist.

Figure I. 2010 Extent of Flooding in Pakistan

September 7, 2010



Source: United Nations Office for the Coordination of Humanitarian Affairs.

Notes: The designations employed and the presentation of material on this map do not imply the expression of any opinion whatsoever on the part of the Secretariat of the United Nations concerning the legal status of any country, territory, city, or area or of its authorities, or concerning the delimitation of its frontiers or boundaries. Dotted line represents approximately the Line of Control in Jammu and Kashmir agreed upon by India and Pakistan. The final status of Jammu and Kashmir has not yet been agreed upon by the parties.

Context of Pakistan's Flood Risk

Pakistan has experienced severe and dangerous flooding in the recent past.¹² One source indicates that serious flooding has affected what is now Pakistan at least 12 times since 1928.¹³ This is the fifth flood in Pakistan affecting nearly 5 million or more people in less than 40 years.¹⁴

¹² The topography, proximity to oceans, and other factors all create significant variability in precipitation across the Pakistani territory during the wet monsoon season. That is, parts of Pakistan, such as the desert region of the south and southeast, experience little precipitation relative to the eastern and central plains of the country, which receive the full effect of the monsoon rains.

¹³ "Unnatural Disasters," *Financial Times*, August 4, 2010. Although the OCHA figures at the following link illustrate statistics for the 2010 Pakistan flood as of August 9, the figures illustrate that this is Pakistan's largest disaster in terms of the number of people affected in the last 60 years: [http://www.reliefweb.int/rw/fullmaps_sa.nsf/luFullMap/8A7B7152D23697D0C125777B00411D87/\\$File/FL-2010-000141-PAK_0809_graph.pdf?OpenElement](http://www.reliefweb.int/rw/fullmaps_sa.nsf/luFullMap/8A7B7152D23697D0C125777B00411D87/$File/FL-2010-000141-PAK_0809_graph.pdf?OpenElement).

¹⁴ Ibid.

Extreme precipitation is the immediate cause of flooding, and is part of weather extremes spawned during the dominant climate condition for Pakistan—the Asian monsoon system.¹⁵ Rivers transporting floodwater from the north can pose flood risks to areas downstream. While extreme precipitation is the flood hazard, development patterns and infrastructure choices affect the number of people and structures and the infrastructure at risk. The relative frequency of significant flooding in Pakistan raises questions about if and how efforts to rebuild can improve the nation’s resiliency to future extreme weather events and how international experience and aid can inform resilient rebuilding.

The current flooding in Pakistan is likely to prove the worst flooding disaster in the country’s history, as far as the number of citizens affected, and the cumulative damage to the region’s economy. It is not yet clear to what extent the flooding itself, in terms of the flow, inundation duration, and land area affected exceeds previous flooding episodes, in part because of the paucity of instrumental data and lack of detailed analyses of recent past and paleo-flooding events in the region. Forthcoming studies are likely to shed light on whether the current flood fits within the historical range of extreme flooding events, or truly represents an outlier compared to the 1,000 year record of high rainfall events captured in tree-rings.¹⁶

Climate Change and Flooding

A related issue is whether climate change during the last half-century contributed to the extent and severity of the current flooding. The 2007 Intergovernmental Panel on Climate Change (IPCC) report stated that scientists project more frequent and more intense weather events due to global warming.¹⁷ However, the report and other scientists contend that a longer time range is needed to attribute single weather events, such as the 2010 floods in Pakistan, to global warming. The IPCC report also stated that an increase in precipitation is projected in the Asian monsoon associated with man-made global warming. The report points out, however, that the role of aerosols in general, and carbon aerosols in particular, complicates the nature of monsoon precipitation, especially Asian monsoon.¹⁸ Detecting a global-warming induced fingerprint in the current flooding may prove elusive until more detailed and focused scientific studies of the nature of the current flooding are completed. Even if global warming were identified as a contributing factor to the severity of the current flooding, it may not be possible to equate the global warming “signal” to an increase in deaths, injuries, and economic losses because changes in population demographics, infrastructure, and other factors also contribute to vulnerability to weather extremes. Disentangling climate change effects from demographic factors contributing to economic losses has been notoriously difficult for natural disasters such as floods and tropical

¹⁵ Defined by the National Weather Service as “a thermally driven wind arising from differential heating between a land mass and the adjacent ocean that reverses its direction seasonally.” See <http://www.nws.noaa.gov/glossary/>.

¹⁶ New scientific research is emerging that provides detailed information on the location, duration, and severity of drought and rainfall events in the region affected by the Asian monsoon, which includes India and Pakistan. In a recent study, tree ring records were examined to reconstruct dry and wet periods over the past 1,000 years for regions of monsoon Asia. Edward R. Cook et al., “Asian Monsoon Failure and Megadrought During the Last Millennium,” *Science*, vol. 328 (April 23, 2010), pp. 486-489. Although the study focused on periods of drought (triggered when the monsoon “failed”), it noted that “Monsoon failures, megadroughts, and extreme flooding events have repeatedly affected the agrarian peoples of Asia over the past millennium.”

¹⁷ IPCC, “Contribution of Working Group I to the Fourth Assessment Report of the Intergovernmental Panel on Climate Change,” Chapter 10, Global Climate Predictions, 2007.

¹⁸ Ibid, Executive Summary.

cyclones in the United States.¹⁹ Therefore, although the monsoon's floodwaters appear broadly consistent with predicted climate change impacts for the region, it is currently not possible to attribute direct causality.

Effects on Infrastructure, Energy Disruption, and Rebuilding

Rebuilding challenges include reconstruction of destroyed or damaged housing and infrastructure, including electrical generation and distribution, roads, bridges, rail lines, levees, dams/barrages, and irrigation works. As of late August, authoritative assessments of the damage to infrastructure or financial requirements for reconstruction were unavailable. Early damage estimates included: 5,000 miles of roads and railways, 11,000 schools, and 400 health facilities, with damage being particularly severe in northern regions like the Swat Valley.²⁰ The difficulty, time, and expense of rebuilding this lost infrastructure is likely to be substantial. Two U.S. university researchers using primarily data on the flood characteristics and pre-flood economic data estimated damages between \$5.1 billion and \$7.1 billion to building and transportation infrastructure and \$2.12 billion in losses from the disruption of trade.²¹ This flood damage infrastructure exacerbates preexisting infrastructure needs in Pakistan.

Floods also have shut down some electricity, oil, and gas facilities. According to media reports, around 2.8 gigawatts of power generation capacity in flood affected areas may still be offline. (Pakistan's total power generation capacity before the flood was around 19 gigawatts.²²) Most of the outages are due to damage to power plants and to the electricity grid. Around 0.9 gigawatts of generation capacity is offline because the oil, natural gas, or other energy sources that fuel it cannot reach power plants.²³ Output at key refining and natural gas facilities has been curtailed due to disruption of transport to customers.²⁴ Prior to the floods, the country was already suffering from a shortage of electricity generation capacity and rolling blackouts,²⁵ and the Obama

¹⁹ See, for example, Roger A. Pielke, Jr. and Mary Downton, "Precipitation and Damaging Floods: Trends in the United States, 1932-97," *Bulletin of the American Meteorological Society*, October 15, 2000, pp. 3625-3637; and Roger Pielke, Jr., "Future Economic Damage from Tropical Cyclones: Sensitivities to Societal and Climate Changes," *Philosophical Transactions of the Royal Society A*, 2007 (published online, doi: 10.1098/rsta.2007.2086).

²⁰ Carlotta Gall, "Pakistan flood sets back years of gains on infrastructure," *New York Times*, August 26, 2010; *OCHA Situation Aug 27 Report*. Also, more than 6,000 schools are being used as emergency shelters.

²¹ Michael J. Hicks and Mark L. Burton, *Preliminary Damage Estimates for Pakistani Flood Events, 2010*, Center for Business and Economic Research, Ball State University, August 2010, <http://cber.iweb.bsu.edu/research/PakistanFlood.pdf>. The analysis included primarily commercial and residential building losses and rail and highway impacts.

²² Energy Information Administration, "International Energy Statistics," U.S. Department of Energy. <http://tonto.eia.doe.gov/cfapps/ipdbproject/IEDIndex3.cfm?tid=2&pid=2&aid=7>. Latest available figures from EIA are for 2007.

²³ Khalid Mustafa, "Deluge impact: power system still deprived of 2,796 MW," *The News (International)*, Aug 27, 2010, <http://www.thenews.com.pk/27-08-2010/National/1518.htm>.

²⁴ Natalie Obiko Pearson, "Pakistan Flood Shuts Biggest Refinery, Cuts Natural Gas Output," *Bloomberg Businessweek*, August 11, 2010. <http://www.businessweek.com/news/2010-08-11/pakistan-flood-shuts-biggest-refinery-cuts-natural-gas-output.html>.

²⁵ The Pakistani government has been increasing electricity tariff rates, a politically unpopular measure, in order to reduce subsidies and spur energy investment. These adjustments are part of Pakistan's program with International Monetary Fund and has the support of other multilateral institutions and the U.S. Department of State. Shortly (continued...)

Administration had pledged \$185 million toward various measures to improve Pakistan's energy supply.²⁶

Assessments of the value and replacement cost of other infrastructure (e.g., energy, medical, and educational facilities) or a reconstruction timeline were not available as of late August. Among the challenges for rebuilding the infrastructure are: prioritizing reconstruction actions; the availability of materials, equipment, and expertise; and mechanisms for oversight of construction and use of funds.

Effects on Agriculture and Food Security

Agriculture is one of the primary mainstays of Pakistan's economy. It accounts for approximately 23% of GDP, employs about 43% of the labor force and provides about 60% of the country's export earnings.²⁷ Arable crops, livestock, and fishing and forestry represent 65%, 31%, and 4% of Pakistan's agricultural GDP, respectively. Pakistan typically has two major growing seasons, *Rabi* (winter crop, spring harvest) and *Kharif* (summer crop, fall harvest).²⁸ The *Kharif* crop is also called the summer or monsoon crop because it is grown during the time of the southwest monsoons, which typically occur from July to October. During the *Kharif* season, agricultural activities take place in rain-fed and irrigated areas. During the *Rabi* season, agricultural activities take place only in the irrigated areas. Nearly 80% of the cropped area is irrigated, producing about 90% of Pakistan's total farm output.

Pakistan's agriculture sector has suffered severe losses as a result of the torrential rain and flooding of July and August, 2010. The majority of adverse flooding impacts have occurred in four provinces: the Punjab, often called the breadbasket of Pakistan, and Khyber Pakhtunkhwa (KPk) in the north, and the provinces of Sindh and Baluchistan in the south, all of which have significant crop production. Approximately 80% of people in the flood-affected areas depend on agriculture for their livelihood. The affected populations have suffered severe crop, livestock, and grain stock losses, though assessments of medium and longer term impacts on the agricultural sector in Pakistan are still ongoing.

(...continued)

following the U.S. Congress's passage of the Enhanced Partnership with Pakistan Act of 2009 (P.L. 111-73), the U.S. Department of State launched the Pakistan Signature Energy Program.

²⁶ U.S. Department of State, "The United States Announces Phase II of the Signature Energy Program for Pakistan," press release, July 19, 2010, <http://www.state.gov/r/pa/prs/ps/2010/07/144820.htm>, and "The United States Announces the Pakistan Signature Energy Program," press release, October 28, 2009, <http://www.state.gov/r/pa/prs/ps/2009/oct/130995.htm>.

²⁷ International Fund for Agricultural Development (IFAD), *Islamic Republic of Pakistan: Country strategic opportunities programme*, Rome, March 25, 2009, <http://www.ifad.org/gbdocs/eb/96/e/EB-2009-96-R-9.pdf>.

²⁸ *Rabi* crops, such as wheat, barley, maize, peas, oats, and mustard, are typically planted in winter from October to December and harvested in spring from April to June; *Kharif* crops, such as millet, rice, corn, pulses, cotton, and soybean, are typically planted with the onset of the monsoon in different parts of the country, often between July and August, and then are harvested in the fall from September to October. In between the *Rabi* and the *Kharif* seasons there can be a short season during the summer months known as the *Zaid* season.

Crops

Rapid damage assessments by U.N. agencies led by the Food and Agriculture Organization of the United Nations (FAO) estimates that at least 3.3 million hectares countrywide of standing crops, including rice, maize, cotton, sugarcane, fruit orchards and vegetables, have been damaged or lost completely due to flooding, with about 1.3 million hectares affected in the four hardest hit provinces.²⁹ This represents about 14% of the total cropped area in 2008.³⁰ The cereal crops of the current *Kharif* or monsoon season (including rice, maize, sorghum, and millet), planted in May/July and scheduled to be harvested from September onward, typically account for approximately 35% of the annual national cereal production. Preliminary reports from FAO and the Asian Development Bank have estimated that as much as 25% of the cotton crop has been affected. Pakistan consequently may be a net importer rather than an exporter of cotton in 2010 in order to support its textile industry. Substantial losses of important export crops such as cotton, sugarcane, and rice, will have a large negative impact on the country's trade balance and household incomes, while losses in the production of staple cereals will exacerbate household food security issues in the country.

While the floods are causing severe negative effects on agricultural production in the current season, the damage and impacts will likely have broader implications for future agricultural production and food security in Pakistan. Wheat is the main staple in Pakistan, providing about 35% of the average per capita calorie requirement in 2008. Wheat is mainly irrigated and contributes approximately two-thirds of the annual national cereal production. It is cultivated primarily during the *Rabi* season, when it is typically planted in October/November and harvested in April/May.

Official final estimates of wheat production from the 2009/2010 *Rabi* season, which was successfully harvested prior to the flood, were close to 23.4 million tonnes, a near record amount. However, the flood waters have resulted in serious losses of wheat stocks that are held at the household level. These reserves serve as the primary source of food for most rural families until the next harvest in April. Tentative estimates made by FAO indicate that 500,000 to 600,000 tonnes of wheat stocked at the farm level may have been damaged or lost to the floods.

The losses of wheat at the household level could also have a negative impact on planting of the 2010/11 *Rabi* season, which is scheduled to begin in October/November. The floods have resulted in the loss of seeds for planting; other agricultural inputs such as fertilizer; livestock; and savings. In addition, damage to irrigation facilities and wells could affect wheat production in the next *Rabi* season, as 90 % of Pakistan's wheat crop is irrigated.

FAO has established a response management team and is working in the flood-affected provinces as well as across Pakistan to provide technical assistance for two primary goals: meeting the upcoming wheat planting season, and saving livestock. Using existing funds, FAO will provide critical agricultural inputs, such as seed, fertilizers, and farming tools to clear water-logged fields, to hundreds of thousands of farmers for the coming planting season.

²⁹ FAO, *Pakistan Flooding: Executive Brief*, September 10, 2010, http://www.fao.org/fileadmin/templates/tc/tce/pdf/Pakistan_Floods_Executive_Brief__10_September_2010.pdf.

³⁰ FAOSTAT estimates Pakistan's total arable land to be about 23 million hectares.

Livestock

The floods have affected the most densely populated livestock areas in Pakistan. The national livestock population was estimated at 217 million animals in 2006, including cattle, buffalo, sheep, goats, donkeys, and poultry. Estimates show that over 1.2 million livestock and 6 million poultry have perished, though final numbers are expected to be much higher.³¹ In KPk alone, a recently completed rapid agricultural sector assessment by FAO found that over 67,000 head of small and large livestock have died, and almost 600,000 more will perish without emergency feed and veterinary support. In addition, poultry losses have been estimated in the millions, with the entire poultry stock wiped out in some areas. Many animals died because they had to be left behind when people were rescued by the Pakistani military and other rescue services.

FAO estimates that “millions of surviving animals are now facing severe feed shortages, threatening generations of Pakistan’s livestock,”³² FAO has stated that its primary priority currently is maintaining and keeping healthy the surviving population of livestock. Getting feed and veterinary services to those in need continues to be a major challenge as supplies of animal feed such as straw and forage is in limited supply, and transportation of goods and services is severely limited due to considerable damage to critical infrastructure. The United Nations has asked for \$5.7 million in emergency assistance for livestock, and FAO has mobilized \$2 million from the Central Emergency Response Fund (CERF) and Belgium.³³ Using existing funds, FAO is working to reach tens of thousands of households with supplementary feed and veterinary support.

Food Security

Prior to the recent flooding, poverty and hunger in Pakistan were already widespread and were especially prevalent in rural areas. Nearly two-thirds of the population and 80% of the country’s poor (about 35 million people) live in rural parts of the country. Women in Pakistan, who have the lowest socio-economic status in South Asia, are often among the most vulnerable populations, along with children. The recent global food price and economic crises of 2008-2009 exacerbated poverty and food security issues in Pakistan. FAO estimated that an additional 17 million people became food-insecure as a result of food price inflation in Pakistan over the past few years, and that the poorest households are now spending more than 70% of their incomes on food. Even before the flooding, FAO had estimated that about 60 million people were food-insecure in Pakistan, which accounts for about half of the country’s population. While the full extent of damage from the summer 2010 flooding has not yet been fully quantified, the direct and future losses are likely to impact national production of staple crops, such as wheat and rice, and affect the food security of millions of people.

Effects on Health

Immediate and long-term health risks caused by the flood are high. Flooding can increase the spread of water-borne diseases when access to clean drinking water is compromised. Likewise,

³¹ FAO, op. cit.

³² See <http://www.fao.org/news/story/en/item/44803/icode/>.

³³ As of September 10, 2010.

standing water caused by flooding can serve as breeding grounds for mosquitoes, increasing the potential for vector-borne diseases. These risks are heightened when there is significant population displacement, abnormal overcrowding, and a reduction in disease control activities.³⁴ Children are particularly vulnerable in these circumstances.

Access to health services and medicines is of key concern in Pakistan's flood-affected areas, as is the restoration of the country's public health infrastructure. The Pakistan Health Cluster reports that over 450 health facilities in flood-affected areas have been damaged or destroyed, including several hospitals.³⁵ Of key concern is the insufficient access that women have to reproductive health services and the limited number of female health workers available.³⁶ Poor hygiene and sanitation conditions in flood affected areas represent a major risk factor, particularly in settlements where individuals have informally or officially gathered. UNICEF reports indicate that approximately 3.5 million flood survivors only have access to contaminated water.³⁷

As of September 3, 2010, close to 4.6 million individuals have received flood-related medical treatment. The main conditions reported are acute diarrhea, acute respiratory infections, skin diseases, and quickly increasing cases of malaria.³⁸ While few cases have been officially confirmed as yet, cholera is endemic in Pakistan and the threat of an outbreak in flood-affected areas remains critical. The U.N. Health Cluster is currently treating all cases of acute watery diarrhea and severe dehydration as if they were cholera. The present health issues are preventable and treatable; however, if clean water is not supplied and environmental hazards not addressed, WHO projects that a worst-case scenario includes 1.5 million cases of diarrheal diseases (including up to 140,000 cases of cholera), and up to 100,000 cases of malaria over the next three months.³⁹ In addition, there is some concern of potential cases of typhoid fever, Hepatitis A and E, Leptospirosis, Dengue fever, Measles and Polio, and increasing malnutrition among children and pregnant women.⁴⁰ Mental health care for survivors dealing with trauma is also an acknowledged priority.

³⁴ WHO, *Flooding and Communicable Diseases Fact Sheet: Risk assessment and Preventive Measures*, at http://www.who.int/hac/techguidance/ems/flood_cds/en.

³⁵ Pakistan Health Cluster, "Floods in Pakistan, Bulletin No 16," September 3, 2010, at <http://www.emro.who.int/eha/pdf/Pakistan%20Health%20Cluster%20Bulletin%2016.pdf> and Pakistan Health Cluster, "Floods in Pakistan, Bulletin No 12," August 16, 2010, at <http://www.who.int/hac/crises/pak/sitreps/16august2010/en/index.html>.

³⁶ Meriwether Beatty, "Under Water: Women's Access to Reproductive Health Care in Pakistan," *Global health Magazine*, August 25, 2010, at http://www.globalhealthmagazine.com/gust_blog_under_water/.

³⁷ Kaiser Family Foundation, "At Least 3.5M Pakistanis Have No Access To Clean Water, Raising Risk For Waterborne Diseases," August 26, 2010, at <http://globalhealth.kff.org/Daily-Reports/2010/August/26/GH-082610-Pakistan.aspx>.

³⁸ Pakistan Health Cluster, "Floods in Pakistan, Bulletin No 14," August 25, 2010, at <http://www.emro.who.int/EHA/pdf/Pakistan%20Health%20Cluster%20Bulletin%2014%20-%20August%2025.pdf>.

³⁹ United Nations, Office for the Coordination of Humanitarian Affairs, "Pakistan: 3.5 Million Children at Risk of Deadly Disease," press release, August 16, 2010, at <http://www.reliefweb.int/rw/rwb.nsf/db900sid/VVOS-88DPRA?OpenDocument&query=children&emid=FL-2010-000141-PAK>.

⁴⁰ WHO, *Communicable Disease Risk Among Populations Affected by Flooding in Pakistan*, August 2010, at http://www.who.int/diseasecontrol_emergencies/publications/Pakistan_floods2010_08_04.pdf.

Economic Effects of the Floods

With much of Pakistan still flooded, it is too early to determine the short-term and long-term effects on its economy. Such assessments will have to await the receding of the flood waters to determine the extent of damage to Pakistan's crops, farmland, housing, roads and bridges, electrical grid, and other critical elements to its economic recovery. Also, as the response to the floods shifts from emergency relief to reconstruction, the level of international support and the effectiveness of recovery programs run by the Pakistan government and the international assistance community will be important forces in recovery process. In addition, other factors—such as the degree and pace at which the millions of displaced people return to their home towns and villages, and the actions of militant groups in the post-flood period—will have serious implications about the economic ripple effects of the floods of 2010.

Some preliminary assessments have been made regarding some elements of the short-term effects of the floods on Pakistan's economy. As indicated above (see "Flooding Impacts on Agriculture and Food Security in Pakistan"), the ADB and FAO estimate that about 14% of Pakistan's cultivated land has been affected by the floods, resulting in the loss of about 25% of the cotton crop and an undetermined portion of the autumn cereal crops. Although less than 1% of the livestock was lost in the flood, these losses may rise due to feed shortages and lack of veterinary care after the flood waters recede.

The broader short-term economic effects of the flooding are already being felt. The floods have sent food prices soaring, exacerbating fears of a new round of high inflation. In addition, greater government expenditures on the emergency relief effort are almost certain to widen the fiscal deficit. Reportedly, the United Nations has estimated that the floods will increase Pakistan's fiscal expenditures by \$4 billion in fiscal year 2010/2011.⁴¹ A preliminary assessment submitted to Pakistan's Minister of Finance has estimated that there may be zero real GDP growth and 25% inflation in the current fiscal year, compared to the IMF targets of 4.5% real GDP growth and 9.5% inflation.⁴² Other estimates predict real GDP growth of about 2%-3% for the current fiscal year, compared to 4.1% in the previous fiscal year.⁴³

The long-term economic effects are more difficult to assess. According to one source, repairing damaged infrastructure, including countless destroyed roads, bridges, and dams, could cost up to \$15 billion.⁴⁴ Critical factors that will influence the speed of Pakistan's economic progress over the next few years are: the pace of the recovery of the agricultural sector; the status of the millions of displaced people; and the level of international support for the relief and reconstruction assistance.

Agricultural production not only plays a critical role for Pakistan's domestic economy, it also is important for its exports. Pakistan's rice exports in 2009 were worth \$1.8 billion, accounting for 10% of its exports. Cotton and cotton yarn exports in 2009 totaled \$3.2 billion, or 18% of Pakistan's total exports. Cotton is also vital for Pakistan's other leading exports—clothing and

⁴¹ Farhan Bokhari, "Pakistan Seeks \$10bn Loan Restructure," *Financial Times*, August 19, 2010.

⁴² "We're Looking at 0% GDP Growth and 25% Inflation," *The International News*, August 23, 2010. Pakistan's fiscal year runs from July 1 to June 30.

⁴³ Economist Intelligence Unit, "Pakistan Country Report," *Economist*, September 2010.

⁴⁴ "Debts Pushing Pakistan to the Brink of Ruin," *The Independent*, August 22, 2010.

other textile articles—which together were worth \$5.8 billion, or 33% of total exports. A slow recovery in agricultural production will adversely effect its balance of trade and potentially contribute to a balance of payments crisis.

The ADB has offered a loan of \$2 billion and the World Bank has offered a loan of \$1 billion to be used primarily in the reconstruction of Pakistan’s infrastructure damaged by the floods. There are also indications that Pakistan’s need for additional assistance will be on the agenda of the next meeting of the Friends of Democratic Pakistan, scheduled for October 14 and 15, 2010, in Brussels.⁴⁵

Pakistan’s Finance Minister Abdul Hafeez Sheikh was in Washington the week of August 23-27 to meet with the IMF as part of the fifth review of the IMF loans. On November 20, 2008, the IMF’s Executive Board approved a SDR 5.169 billion (at the time, the equivalent of \$7.65 billion)⁴⁶ stand-by arrangement for Pakistan to avert a balance of payments crisis. The IMF subsequently approved an additional SDR 2.067 billion (\$3.22 billion) in assistance on July 27, 2009. These loans were to be paid out in seven installments (called “tranches”), ending in November 2010, following reviews of Pakistan’s economic progress. As part of the loan agreement, Pakistan promised to make a number of changes in fiscal and monetary policy (commonly known as “conditionalities”), including gradually lowering its fiscal deficit as a percentage of GDP. The agreement also stipulated that Pakistan would have to repay the loans starting in 2012.

Prior to the floods, Pakistan had failed to meet several of the IMF conditionalities, and the IMF was reportedly applying pressure on Pakistan to meet its commitments.⁴⁷ Pakistan’s fiscal deficit has increased to 6.2% of GDP, a level exceeding the IMF target of 5.1% of GDP. The cost of the emergency relief efforts are likely to make it impossible to meet the IMF target. Pakistan reportedly asked the IMF to relax this and other conditionalities during the August meetings in Washington. It also requested the release of the remaining balance of the IMF loans, worth about \$2.6 billion. No official announcement of the outcome of the fifth review has been made.

On September 16, however, the IMF announced a \$451 million emergency loan to help Pakistan deal with the aftermath of the flooding.

An economic problem looming on the horizon is the cost of servicing the IMF loans and other debt incurred since 2008. Pakistan’s current outstanding debt is \$55.5 billion, which is 56% of GDP. Under the current agreement, repayments on the IMF loan will cost the Pakistan government over \$3 billion per year starting in fiscal year 2012/2013. There is concern that the cost of servicing its debts may undermine Pakistan’s economic recovery.

⁴⁵ On September 26, 2008, an ad-hoc group of interested nations and organizations met on the sidelines of a United Nations General Assembly session to discuss Pakistan balance of payments crisis. Initially called the “Friends of Pakistan,” the group held its first ministerial meeting on April 17, 2009, in Tokyo. The group subsequently renamed itself the Friends of Democratic Pakistan (FODP).

⁴⁶ The SDR, or “special drawing right” is the official unit of account for the IMF. Its value is determined by a basket of 16 major currencies, including the U.S. dollar. As such, the exchange rate between the SDR and the U.S. dollar varies over time. Unless otherwise noted, the U.S. dollar equivalents cited in the memo are valued using the exchange rate at the time of the event.

⁴⁷ The IMF was apparently particularly frustrated by Pakistan’s failure to implement a value-added tax (VAT), which has been held up for political reasons.

Humanitarian Implications of the Flood

The humanitarian implications of the flooding in Pakistan are vast (**Table 3**). Humanitarian issues such as health, sufficient food, water, and shelter, and displaced populations exist. According to an emergency response plan for Pakistan put forth by the United Nations, distributing food assistance to flood victims is among the top priorities for the overall immediate flood response.⁴⁸ The World Food Programme (WFP) is the lead U.N. agency responsible for coordinating and leading the efforts to address the immediate food needs of flood-affected populations in the hardest-hit areas of the country. The key expected outcomes from the food security related efforts will be to:

- Stabilize and/or improve food consumption over the assistance period for six million flood-affected people per month during the next 12 months,
- Increase the supply of nutritious food to infants and young children, and
- Prevent additional losses of surviving livestock.

In order to meet the relief food needs of up to six million people, the United Nations is requesting \$600 million, of which a portion will be spent on maintaining surviving livestock. Since the beginning of August 2010, the WFP has received \$103 million.

As of September, 2010, WFP reports that it has provided almost 3.0 million people with a one-month ration of food across 44 districts in Khyber Pakhtunkhwa, Sindh, Baluchistan, Azad Jammu and Kashmir (AJK) and Punjab provinces.⁴⁹ WFP is working with over 30 NGOs to provide food to between 125,000 and 150,000 people per day in order to meet their ultimate goal of reaching more than six million people with food aid over the next 12 months. Many communities are inaccessible by land because of remaining high floodwaters and/or because roads and bridges have been washed away. WFP is transporting food by mule and air transport (primarily helicopter) to inaccessible populations.

A second major concern is the fate of displaced populations. Over 1.8 million houses have been damaged or destroyed, and a similar amount of people are being accommodated in schools, colleges, and other makeshift sites. According to the United Nations Office for the Coordination of Humanitarian Affairs (OCHA), a large need for emergency shelter exists. The majority of adults in these sites are women. Many of the men have endured the flooding and gone back to their property to salvage belongings and deter squatters. There have been some reports about the potential of displaced people to cause political unrest in some cities. For example, thousands of people displaced by the floods, most of them ethnic Sindhis, are arriving in Karachi. According to some, this could be adding a volatile new element to the political dynamic there. While Sindhi

⁴⁸ The Pakistan Initial Floods Emergency Response Plan (PIFERP) was released by the United Nations on August 11, 2010. The emergency response plan seeks USD\$460 million to enable international partners (U.N. organizations and non-governmental organizations (NGOs) to support the Government of Pakistan in addressing the needs of flood-affected families during the immediate relief period, of which \$156.25 million would go towards addressing immediate food security needs. The plan will be revised within 30 days to reflect assessed needs as the situation evolves and will include strategies for assisting people with early recovery from the floods. For the full document, see [http://www.reliefweb.int/rw/RWFiles2010.nsf/FilesByRWDocUnidFilename/SKEA-887J5J-full_report.pdf/\\$File/full_report.pdf](http://www.reliefweb.int/rw/RWFiles2010.nsf/FilesByRWDocUnidFilename/SKEA-887J5J-full_report.pdf/$File/full_report.pdf).

⁴⁹ World Food Programme, *Monsoon Flooding in Pakistan, Operational Update*, September 11, 2010. See <http://documents.wfp.org/stellent/groups/public/documents/communications/wfp225461.pdf>.

nationalists are welcoming them, opponents such as Muttahida Qaumi Movement (M.Q.M.) members warn that they will create more violence.⁵⁰

Table 3. Provinces in Pakistan Affected by Flooding
As of September 6, 2010

Province	Deaths	Injured	Houses Damaged	Population Affected
Baluchistan	48	102	75,261	672,171
Khyber Pakhtunkhwa	1,156	1,193	200,799	4,365,909
Punjab	110	350	500,000	8,200,000
Sindh	199	909	1,058,862	6,988,491
AJ&K	71	87	7,108	245,000
Gilgit Baltistan	183	60	2,830	81,605
Total	1,767	2,701	1,844,860	20,553,176

Source: United Nations Office for the Coordination of Humanitarian Affairs, September 14, 2010.

Political-Security Implications of the Flood⁵¹

The Obama Administration's strategy toward Pakistan, and the broad goals of the Enhanced Partnership With Pakistan Act of 2009 (P.L. 111-73, also known as the Kerry-Lugar-Berman act), are likely to be significantly frustrated by the worst natural disaster in Pakistan's 63-year history. Central to the provisions of P.L. 111-73 was the authorization of \$7.5 billion in nonmilitary U.S. assistance to Pakistan for the period FY2010-FY2014, a major increase in economic and development aid aimed at bolstering Pakistan's institutions and infrastructure, as well as demonstrating a long-term U.S. commitment to partnership with that country. Many observers now consider it likely that a portion of any funds appropriated in the future will be diverted to recovery efforts and could thus be unavailable for the types of capacity-building programs and projects originally envisaged.

In the nearer-term, U.S. interests in countering Islamist militancy in the region, and strengthening Pakistan's democratic institutions are under greater threat due to the chaos and destruction caused by widespread flooding there.⁵² While ongoing U.S. and NATO military operations in neighboring Afghanistan are relatively unaffected, the circumstances inside Pakistan appear to be providing time and space for both Afghan and Pakistani Taliban militants, as well as numerous other assorted indigenous Islamist extremist groups, to regroup. Moreover, by undertaking disaster relief efforts in areas poorly served by the government, Islamist charities linked to such groups could boost recruitment and improve their standing with affected residents. The U.S.

⁵⁰ Carlotta Gall, "After Flood, Pakistani Officials Try to Quell Anger," *International Herald Tribune*, September 7, 2010, p. 3.

⁵¹ See also CRS Report R41307, *Pakistan: Key Current Issues and Developments*, by K. Alan Kronstadt.

⁵² "U.S. Strategy in Pakistan Upended by Floods," *New York Times*, August 19, 2010. Even before the flooding began, Pakistan was suffering from multiple armed insurgencies, major terrorist attacks on cities, sectarian violence, a teetering economy, lack of state services, and a largely impotent civilian administration (see, for example, Ahmed Rashid, "The Anarchic Republic of Pakistan," *National Interest*, August 24, 2010).

government is actively seeking to counter this possibility through its own ground response, with officials in Washington viewing the catastrophe as an opportunity to demonstrate America's commitment to and friendship with the Pakistan people. After surveying the affected areas in person, the Chairman of the Senate Foreign Relations Committee, Senator John Kerry, declared that helping Pakistan "is in all of our interests."⁵³

On the political front, an already weak civilian government in Islamabad is criticized for what has been viewed as a slow and woefully insufficient response, further damaging its credibility.⁵⁴ In contrast, the Pakistani military, widely viewed as the country's most relatively capable institution, has benefited in the public eye following its energetic relief efforts in affected areas. For some observers, this dynamic could threaten recent progress toward democracy in a country that has seen four military coups in the past 42 years.

Pakistan-U.S. Relations, Militant Groups, and Public Sentiment

Potential to Improve U.S. Standing in Pakistan

Hopes abide that the rapid and major disaster relief assistance being provided by the United States may contribute to lessening widespread and long-held anti-American sentiment in Pakistan. In this respect, the tragedy could also be seen as an opportunity to narrow the gaping "trust gap" in U.S.-Pakistan relations. The U.S. Special Representative for Afghanistan and Pakistan, Ambassador Richard Holbrooke, has been explicit in seeking this goal.⁵⁵ By some accounts, this is taking place, although the evidence remains anecdotal.⁵⁶ Yet there is also evidence that Pakistanis are largely unaware of U.S. largesse in the recent past and do not report seeing tangible benefits from same. According to one recent opinion survey, about half of Pakistani respondents believe the United States gives little or no assistance to their country, suggesting that public relations gains from aid may be fleeting, at best.⁵⁷ Moreover, while the U.S. government has committed \$200 million to date, private contributions have been quite small relative to those given for other recent natural disasters, potentially fueling Pakistani resentment and distrust.⁵⁸

⁵³ John Kerry, "A Call for Help in Flood-Ravaged Pakistan" (op-ed), *Boston Globe*, August 29, 2010. See also David Ignatius, "The Case for Aiding Flooded Pakistan" (op-ed), *Washington Post*, August 29, 2010.

⁵⁴ Numerous anecdotal reports from the ground indicate that, even as of early September, there had been no notable government response across wide swaths of affected areas (CRS interviews with returning relief workers, September 15, 2010).

⁵⁵ "U.S. Offers Aid to Rescue Pakistanis and Reclaim Image," *New York Times*, August 15, 2010. See also Shuja Nawaz, "A Chance to Build Trust in Pakistan" (op-ed), *Washington Post*, August 12, 2010. There is some empirical evidence that such a dynamic occurred in the recent past: A Pew poll taken shortly before Pakistan's catastrophic October 2005 earthquake found only 23% of Pakistanis expressing a favorable view of the United States, the lowest percentage for any country surveyed. That percentage doubled to 46% in an ACNielsen poll taken after large-scale U.S. disaster relief efforts in earthquake-affected areas, with the great majority of Pakistanis indicating that their perceptions had been positively influenced by witnessing such efforts.

⁵⁶ "US Aid Winning Friends in Flood-Ravaged Pakistan," Associated Press, August 10, 2010; "Opinions of U.S. Rise Along With Airlifts," *Washington Post*, August 12, 2010; "In Pakistan, U.S. Hopes Aid Builds Goodwill," *USA Today*, September 2, 2010. A recent study on the effects of foreign aid following Pakistan's October 2005 earthquake found that many "hearts and minds" were, in fact, won by the infusion ("Study: Aid After 2005 Quake Won Trust in Pakistan," *Washington Post*, September 7, 2010).

⁵⁷ "U.S. Aid Buys Little Goodwill," *Washington Post*, August 24, 2010.

⁵⁸ "In Pakistan, A Flood of Aid and Mistrust," *Washington Post*, September 6, 2010; "Pakistan Floods: Could 'Donor (continued...)"

Islamist Extremists Groups and Disaster Relief

Some extremist-run charities have undertaken relief efforts in areas where government aid has been lacking. By providing food, shelter, and other benefits to desperate victims, such organizations may win sympathy and even (additional) future support from affected residents. Of potential concern, especially from a U.S. perspective, are the activities of the Falah-i-Insaniyat and Jamaat-ud-Dawa. (JuD). These are the charity and political wings, respectively, of Lashkar-e-Taiba (LeT), a U.S.-designated Foreign Terrorist Organization (FTO) held responsible for the Mumbai attack of November 2008, as well as many other terrorist activities.⁵⁹ When asked about the likelihood of extremist groups gaining strength and influence through their own relief activities, Secretary of State Clinton said she did not think it was great and suggested that such reports were being overstated.⁶⁰

Another U.S.-designated FTO, the Tehrik-i-Taliban Pakistan (TTP, also known as the Pakistani Taliban) denounced U.S. assistance and called for a boycott of all Western aid.⁶¹ Although the TTP has threatened to attack Western aid workers in the country since the floods began, no such attacks are known to have taken place, and the U.S. military is taking significant precautions to ensure the safety of own its forces, as well as for other U.S. aid workers in-country. In late August, a senior U.S. military officer in Pakistan stated that he had “seen no security threat whatsoever” to U.S. personnel in Pakistan in the preceding three weeks, and he lauded the Pakistani military for its provision of force protection.⁶²

Domestic Political Effects

Pakistan’s particular circumstances—poor government capacity, struggling economy, sagging infrastructure, multiple armed insurgencies, and all manner of regional, sectarian, and class divisions—leave it ripe for potentially major upheaval as a result of the floods. In the view of some analysts, the aggregated pressures are so great that the current national government is seen as unlikely to survive and complete its five-year term set to end in the spring of 2013.⁶³ Some more alarmist observers have even suggested that the Pakistani state itself could collapse, although most believe this is a remote possibility.⁶⁴

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Fatigue’ Harm US-Pakistan Relations?,” *Christian Science Monitor*, September 8, 2010.

⁵⁹ The JuD is reported to have distributed thousands of packages containing food, soap, and other personal effects, along with 3,000 rupees (about \$35) in cash (“Islamist Charity Aims to Be Pakistani’s Salvation,” *Reuters*, September 3, 2010).

⁶⁰ See the State Department’s August 19, 2010, transcript at <http://www.state.gov/secretary/rm/2010/08/146100.htm>.

⁶¹ “Pakistani Taliban Urge Rejection of Foreign Flood Aid,” *Agence France Presse*, August 11, 2010. Even a senior leader of a mainstream Islamist party, the Jamaat-e-Islami, labeled aid from the United States (and India) as “poison” for the Pakistani nation and people (“Pakistan Islamist Party Says US, India Funds ‘Poison’ for Flood Victims,” BBC Monitoring South Asia, August 25, 2010).

⁶² “Mullen Shares Concern for Aid Workers,” Armed Forces Press Service, August 27, 2010; Brig. Gen. Michael Nagata quoted in the August 25, 2010, Pentagon transcript at <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4677>.

⁶³ “Floods in Pakistan Carry the Seeds of Upheaval,” *New York Times*, September 6, 2010.

⁶⁴ “Pakistan Flood Crisis Raises Fears of Country’s Collapse,” McClatchy News, August 13, 2010.

Status of the Civilian Government

The current national coalition government was seated in the spring of 2008 after relatively free and fair elections. It is led by the Pakistan People's Party (PPP) of President Asif Zardari and Prime Minister Yousaf Raza Gilani. After flooding began in late July, President Zardari came under intense criticism for going ahead with a planned state visit to Europe even as the scope of the devastation was coming clear. His early August travel, which included costly stays at luxury hotels, hugely exacerbated a pre-existing perception of the President as detached from the human suffering taking place in his own country.⁶⁵ Zardari contended that he had used the trip to "mobilize foreign assistance" and "had to choose substance over symbolism."⁶⁶ Nevertheless, Pakistanis appear to feel significant anger toward politicians at all levels of government, and this sense of abandonment in time of need could significantly weaken the standing of democratic forces in the country.⁶⁷ One senior Pakistani analyst saw both the federal and provincial government responses as representative of the broader "abysmal failure" of the country's political class. He predicts "catastrophic consequences" for the PPP-led national government if relief work is not undertaken efficiently and with transparency.⁶⁸ In a country where corruption and political patronage are rife, angry accusations have arisen that officials are manipulating the distribution of relief resources to their political allies.⁶⁹

Internal Administrative Issues

The internal political effects of the floods remain unclear to date, but are likely to be quite serious. There have been signs that Pakistan's already fraught center-province and interprovincial tensions are being exacerbated by economic hardship and competition for resources. For example, in the densely populated Punjab province, home to more than half of Pakistan's total population, the provincial government of former Prime Minister Nawaz Sharif's Pakistan Muslim League-Nawaz (PNL-N, which represents the main opposition at the national level) has tussled with the federal government over aid disbursement issues. The PML-N may seek to take advantage of anti-government sentiments to make political inroads in the Sindh province, home to the PPP's core votebank.⁷⁰ Meanwhile, there have been credible allegations that rich landowners, mostly in Sindh, allowed levees to burst so that floodwaters would be diverted to unprotected areas, sparing their crops. These actions may have had a negative impact on the neighboring Baluchistan province.⁷¹

⁶⁵ In a comparison to President G.W. Bush's response to hurricane devastation on the U.S. Gulf Coast in 2005, one critic called the floods "Zardari's Katrina" (Fatima Bhutto, "Zardari's Katrina," *Foreign Policy* (online), August 4, 2010).

⁶⁶ Asif Ali Zardari, "Pakistan's Project of Renewal" (op-ed), *Wall Street Journal*, August 11, 2010.

⁶⁷ "Will Slow Response to Pakistan Floods Threaten Democracy?," *Christian Science Monitor*, August 12, 2010.

⁶⁸ Hasan-Askari Rizvi, "Is There a Way Out?" (op-ed), *Daily Times* (Lahore), August 15, 2010. See also Mohsin Khan and Shuja Nawaz, "Pakistan: Assessing the Tragedy," *New Atlanticist* (online), August 26, 2010.

⁶⁹ "Floods in Pakistan Carry the Seeds of Upheaval," *New York Times*, September 6, 2010.

⁷⁰ "National Flood Relief Strategy" (editorial), *Daily Times* (Lahore), September 6, 2010; "Pakistan After the Floods: A Bird's Eye View," IHS Global Insight, September 9, 2010.

⁷¹ "Pakistan Landlords 'Diverted Flood Water,'" BBC News, September 2, 2010. A former Pakistani Prime Minister from Baluchistan accused members of the government of purposefully redirecting floodwaters in his home province, saying the actions reflected Islamabad's long-standing disregard for Baloch well-being and would prove costly to it in terms of public sentiment ("Floods in Pakistan Carry the Seeds of Upheaval," *New York Times*, September 6, 2010).

Role and Standing of the Pakistani Military

Pakistan's military has always played a key role in the country's governance; the country has been ruled directly by the military for more than half of its existence as an independent state. The ultimately unpopular rule of President-General Pervez Musharraf, who seized power through unconstitutional means in 1999 and left office in 2008, was harmful to the military's public image, which typically rates as the most positive among Pakistani institutions. Since his 2007 ascension to the pinnacle of Pakistani military rank, current Chief of Army Staff General Ashfaq Pervez Kayani has worked with considerable success to restore the army's prestige while at the same time withdrawing it from any overt role in governance. With his organization taking the lead in providing flood relief, Kayani's influence has only grown, and the military's Rawalpindi headquarters is again seen by many as the sole effective locus of state power in Pakistan.⁷² The implications are worrisome for proponents of representative government who wish to see Pakistan's democratic institutions strengthened further. The U.S. government explicitly supports Pakistani democracy. When asked about recent controversial statements, a U.S. State Department spokesman said, "Pakistan has a civilian government and we think it is the best form of government to take."⁷³ More recently, Prime Minister Gilani assured the nation that a military takeover was out of the question.⁷⁴

Counterinsurgency Operations

Almost immediately upon incoming reports of this latest natural disaster in Pakistan, fears arose in Washington, Islamabad, and other world capitals that resulting chaos and destruction would open up space for Pakistan's numerous Islamist militant groups to regroup and perhaps even recover from losses suffered from recent, damaging battles with the Pakistani military. There have already been some reports of militants exploiting the situation with attacks on government security targets, and devastating suicide bomb attacks against minority Shia demonstrate that the threat posed by terrorist groups has not subsided as a result of the flooding. Since early August, some 60,000 Pakistani army troops were diverted to disaster relief efforts. In mid-month, a spokesman for the Pakistani military asserted that their relief activities would "have no impact on our fight against militants."⁷⁵

President Zardari has warned that "negative forces" could see a boost in recruitment as a result of the catastrophe. In a similar vein, Foreign Minister Qureshi expressed worries that, in the absence of sufficient government intervention, food rioting could lead to further violence "being exploited by people who are known." Provincial officials have issued similar warnings.⁷⁶ Some observers

⁷² "Flood Gives Renewed Clout to Powerful Pakistan Army," *Reuters*, September 6, 2010. The Army reports that it is providing more than half of all relief supplies, about three times the amount being provided by the rest of the government ("Pakistan Army Seeking Flood Relief Without Dependency on Aid, Mullen Told," *Bloomberg News*, September 2, 2010).

⁷³ "Altaf Asks 'Patriotic Generals' to Act," *News* (Karachi), August 23, 2010; Imtiaz Alam, "Altaf Hussain's Martial Law Balloon" (op-ed), *Daily Times* (Lahore), August 29, 2010; State Department's August 26, 2010, press briefing at <http://www.state.gov/r/pa/prs/dpb/2010/08/146322.htm>.

⁷⁴ "Army Won't Take Over: PM," *Daily Times* (Lahore), September 10, 2010.

⁷⁵ "Pakistan Floods Could Give Taliban Time to Regroup," *Associated Press*, August 11, 2010; spokesman quoted in "Pakistan Says Won't Divert Forces From Militant Fight," *Reuters*, August 13, 2010. Recent air strikes on Pakistani Taliban targets in the Tirah Valley of the Khyber Pakhtunkhwa province suggest that a level of pressure on insurgents is continuing ("Pakistan Raids Kill 45 Militants, Family Members," *Reuters*, September 1, 2010).

⁷⁶ "Pakistan Leaders Say Militants Could Exploit Flood," *Associated Press*, August 19, 2010; Qureshi quoted in (continued...)

believe such warnings are overblown and may reflect the desire of Pakistani officials to attract greater foreign assistance.

In recognition of the overwhelming nature of the flooding, U.S. officials apparently have refrained from pressing the Pakistani government and army to go ahead with anticipated military operations in the FATA—especially against the Afghan Taliban-aligned Haqqani network in North Waziristan—as they had been throughout 2010.⁷⁷ In August, the deputy commander of the Office of the U.S. Defense Representative in Pakistan expressed confidence that the Pakistanis will “continue to wage a dedicated, committed struggle against violent extremism.” More recently, the commander himself said the numbers of Pakistani troops dedicated to counterinsurgency operations was unchanged and the focus of the their leadership had “not wavered.” It is notable that the militants also have suffered setbacks: in the words of the senior-most U.S. military officer, “I think [the flooding] delays everybody’s timetable,” including “the enemy’s timetable.”⁷⁸

Despite these official U.S. and Pakistani expressions of confidence and determination, most independent observers contend that counterinsurgency efforts in the country now face major and obvious setbacks, not only due to the need to divert resources to relief efforts, but also because so much infrastructure has been damaged or destroyed.⁷⁹ Military gains made in the past 18 months are thus in jeopardy of being lost as a result of the flooding. In the Swat Valley of the KPK province, which the Pakistani military had largely cleared of anti-government militants in 2009, electricity has been widely unavailable and most key roads, bridges, and other infrastructure are unusable.⁸⁰ Likewise, although TTP bases in South Waziristan recently were cleared through major military offensives, efforts to resettle hundreds of thousands of citizens displaced by the fighting there have been placed on hold.⁸¹ Beyond these Pashtun-majority northwestern regions of the country, the flooding may also contribute to increased conflict and instability in the Pakistani heartland, where the LeT and other Sunni militant groups are based. Moreover, by creating a flow of hundreds of thousands of internally displaced persons into the southern megacity of Karachi, the floods have placed even more pressures where interethnic tensions were already high.⁸²

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“Pakistan’s Epic Flood” (editorial), *Wall Street Journal*, August 19, 2010; “Pakistan Says Militants Exploiting Flood Crisis,” *Los Angeles Times*, August 20, 2010.

⁷⁷ “Pakistan Fight Stalls for U.S.,” *Wall Street Journal*, August 13, 2010.

⁷⁸ Brig. Gen. Michael Nagata quoted in the August 25, 2010, Pentagon transcript at <http://www.defense.gov/transcripts/transcript.aspx?transcriptid=4677>; Vice Adm. Michael LeFever quoted in the September 9, 2010, U.S. Embassy transcript at <http://islamabad.usembassy.gov/pr-10090903.html>; Joint Chiefs Chairman Adm. Mike Mullen quoted in “Pakistan Army Seeking Flood Relief Without Dependency on Aid, Mullen Told,” *Bloomberg News*, September 2, 2010.

⁷⁹ See, for example, “Torrent of Challenges for U.S. in Pakistan” (interview), Council on Foreign Relations, August 20, 2010. Pakistan’s ambassador to the United States reportedly conceded that the military’s resources are stretched thin by the disaster, meaning its counterinsurgency operations are being hampered (“Flooding Hurts Pakistan Terror Fight,” *Associated Press*, September 8, 2010).

⁸⁰ “Flood Brings Chaos Back to Pakistan’s Swat Valley,” *New York Times*, August 19, 2010.

⁸¹ “For Pakistanis, The Worst May Be Still to Come,” *Washington Post*, August 18, 2010.

⁸² Ethnic Pashtuns displaced by conflict in the FATA are now joined in large numbers by ethnic Sindhis from rural areas, posing a potential threat the established order of Karachi’s dominant Urdu-speaking Mohajirs. Rioting and targeted killings are ongoing in Karachi; about 1,000 people have been killed in ethnic strife in Karachi in 2010 to date (“Crush of Refugees Inflames Karachi,” *Wall Street Journal*, August 26, 2010).

Some press reports have indicated that the main supply lines for U.S. and NATO forces in Afghanistan, which run from the Karachi port north to through Quetta or Islamabad, were significantly disrupted by the flooding. The inundation has forced trucks to take longer routes than usual, delaying schedules, but a spokesman for the U.S. military's Transportation Command said the slower delivery was not meaningfully affecting operations in Afghanistan. While the immediate effects on US/NATO operations are thus minor, Pentagon officials are concerned that secondary and tertiary effects impacting regional stability could be seen in the medium and longer-term.⁸³ The Afghan military has provided some resources to Pakistani flood relief, potentially improving Pakistan-Afghan relations.

Observations

The flooding in Pakistan is expected to have significant short-term and potential long-term effects on the country. These effects will be exacerbated by existing problems in Pakistan that range from poverty and depleted infrastructure, among other things. The short-term effects of flooding are steadily being realized as displaced people start returning to their homes in northern areas where floodwaters have receded, and government officials and aid workers begin reporting issues from all affected areas. The full extent of the long-term effects of the flooding are likely to present daunting challenges to the country. The long-term effects are likely to manifest themselves in two ways that have significance to the United States and Congress. One aspect is the humanitarian toll that is likely to emerge from displaced people, disease, food security, and an economic decline. Another aspect is the strategic concerns that could result from a weakened government, and a dissatisfied and disenfranchised population. The strategic implications involve U.S. interests in countering Islamic militancy in the region, strengthening democracy in Pakistan, and fighting the war in Afghanistan.

⁸³ "Pakistan Flooding Disrupts Afghan War Supplies," *New York Times*, August 24, 2010; CRS interview with Defense Department official, August 24, 2010.

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